

WHAT IS CLAIMED IS:

1. A method of producing a semiconductor integrated circuit device, comprising:
  - (a) forming a MISFET over a semiconductor substrate, said MISFET including a word line as a gate electrode and impurity regions as source/drain regions;
  - (b) forming a first insulating film covering said MISFET;
  - (c) forming a second insulating film over said first insulating film;
  - (d) forming a conductive film over at least said second insulating film and said impurity regions;
  - (e) patterning said conductive film to form a lower electrode of a capacitor element;
  - (f) forming a dielectric film over said lower electrode and said second insulating film; and
  - (g) forming an upper electrode of said capacitor element over said dielectric film,

wherein after said step (e), one end of said lower electrode is left over said second insulating film.
2. A method of producing a semiconductor integrated circuit device according to claim 1, wherein in said step (e), said conductive film is patterned using a photoresist film.
3. A method of producing a semiconductor integrated circuit device according to claim 1, wherein in said step (e), said second insulating film is used as an etching stopper.

4. A method of producing a semiconductor integrated circuit device according to claim 1, wherein said lower electrode comprises a poly-silicon film.

5. A method of producing a semiconductor integrated circuit device according to claim 1, wherein said second insulating film comprises a silicon oxide film.

6. A method of producing a semiconductor integrated circuit device performed using at least a sputtering apparatus including a single-loader chamber, a twin-loader chamber, a cleaning chamber and a sputtering chamber, comprising:

- (a) forming a MISFET over a semiconductor substrate;
- (b) forming an insulating over said MISFET; and
- (c) forming a wiring layer over said insulating film within said sputtering apparatus.

7. A method of producing a semiconductor integrated circuit device according to claim 6, wherein said wiring layer is stacked films, and wherein said stacked films are continuously formed within said sputtering apparatus.

8. A method of producing a semiconductor integrated circuit device according to claim 6, wherein said wiring layer includes aluminum as the main ingredient.

9. A method of producing a semiconductor integrated circuit device according to claim 6, wherein said step (c) comprises:

- (c1) after step (b), cleaning a main surface of said semiconductor substrate including a surface of said insulating film within said cleaning chamber; and

(c2) after said step (c1), forming said wiring layer over said insulating film within said sputtering chamber.

10. A method of producing a semiconductor integrated circuit device, comprising:

(a) forming a first refractory metal film or a first refractory metal silicide film over a main surface of a semiconductor substrate;

(b) forming a metal film over said first refractory metal film or first refractory metal silicide film; and

(c) forming a second refractory metal film or a second refractory metal silicide film over said metal film,

wherein steps (a), (b) and (c) are performed using a sputtering apparatus, and said sputtering apparatus includes a single-loader chamber, a twin-loader chamber, a cleaning chamber and a sputtering chamber, and

wherein said steps (a), (b) and (c) are continuously performed within said sputtering apparatus.

11. A method of producing a semiconductor integrated circuit device according to claim 10, wherein said metal film includes aluminum as the main ingredient.

12. A method of producing a semiconductor integrated circuit device according to claim 10,

wherein said sputtering chamber includes a first sputter portion, a second sputter portion and a third sputter portion,

wherein said first sputter portion is provided with a first target consisting of said first refractory metal or said first refractory silicide,

wherein said second sputter portion is provided with a second target consisting of said metal, and

wherein said third sputter portion is provided with a third target consisting of said second refractory metal or said second refractory metal silicide.

13. A method of producing a semiconductor integrated circuit device according to claim 12, wherein said metal includes aluminum as the main ingredient.

14. A method of producing a semiconductor integrated circuit device according to claim 10, further comprising a step (d):

(d) before said step (a), cleaning said main surface of said semiconductor substrate within said cleaning chamber.